4

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/633,005	08/04/2000	David G. Way	FN-3120	2260

7590 01/26/2004

BARTON E. SHOWALTER
BAKER, BOTTS, LLP
2001 ROSS AVENUE
SUITE 600
DALLAS, TX 75201-2980

EXAMINER	
BELLO, AGUSTIN	

ART UNIT	PAPER NUMBER
2633	17

DATE MAILED: 01/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/633,005	WAY, DAVID G.	
	Examiner	Art Unit	
	Agustin Bello	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *16-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 April 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 16-22, 24-26, are rejected under 35 U.S.C. 102(e) as being anticipated by Handelman (U.S. Patent No. 6,574,018).

Regarding claims 16 and 24, Handelman teaches a method of operating an optical communication system, comprising: increasing a spectrum width of a first optical channel space (including non-converted channels) by at least an amount equal to a spectrum width of a second optical channel space (including the converted channels) to create a new optical channel space; wherein the new optical channel space has a spectrum width at least equal to a sum (e.g. via combination of non-converted and converted wavelengths) of the spectrum width of the first optical channel space and the spectrum width of the second optical channel space; and

communicating a signal over the new optical channel space at a bit rate requiring the spectrum width of the new optical channel space (column 3 lines 11-20, 31-38, column 13 lines 50-54, column 14 lines 1-7, 29-33, column 15 lines 1-8, 62-67, column 16 lines 16-18, 47-52).

Regarding claim 17, Handelman teaches the method of Claim 16, wherein increasing a spectrum width of a first optical channel space comprises tuning a filter (column 14 lines 1-6, column 14 lines 29-34) associated with the first optical channel space to a wider passband.

Regarding claims 18 and 25, Handelman teaches the method of Claim 16, further comprising deactivating a transponder associated with the first or second optical channel space (column 17 lines 48-53).

Regarding claims 19 and 26, Handelman teaches a fiber optic communication system, comprising: a first optical channel space having a first spectrum width; a second optical channel space adjacent to the first optical channel space, the second optical channel space having a second spectrum width; a tunable filter operable to increase the second spectrum width of the second optical channel space by at least an amount equal to the first spectrum width to create a new optical channel space having a third spectrum width, the new optical channel space operable to carry a signal at a bit rate requiring the third spectrum width (column 21 lines 55-61, column 22 lines 4-36, column 25 lines 41-57, column 26 lines 6-13, 22-24).

Regarding claims 20 and 22, Handelman teaches a method of operating an optical communication system, comprising: dividing a first spectrum width (e.g. transfer of data from channel 2) of a first optical channel space to create a second optical channel space having a second spectrum width (e.g. channel 6) and a third optical channel (e.g. channel 7) space having a third spectrum width; wherein a sum of the second spectrum width and the third spectrum

width is equal to (e.g. equalization of the channels) or less than the first spectrum width; communicating a signal over the second optical channel space at a bit rate requiring a spectrum width equal to or less than the second spectrum width; and communicating a signal over the third optical channel space at a bit rate requiring a spectrum width equal to or less than the third spectrum width (column 21 lines 55-61, column 22 lines 4-36, column 25 lines 41-57, column 26 lines 6-13, 22-24).

Regarding claim 21, Handelman teaches the method of Claim 20, wherein dividing a first spectrum width of a first optical channel space comprises tuning a filter of the first optical channel space to a narrower passband (column 13 lines 50-67 and column 14 lines 1-6, 29-33).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 23 and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Handelman (U.S. Patent No. 6,574,018).

Regarding claim 23 Handelman teaches a fiber optic communication system, comprising: a plurality of emitters (column 11 lines 44), each emitter operable to communicate a signal over a respective initial channel, wherein each initial channel has a respective initial spectrum width; a plurality of modulators (column 11 lines 45), each modulator coupled to at least one of the plurality of emitters, wherein each modulator is operable to modulate data onto a signal; and a passband filter (reference numeral 130 in Figure 2), the filter coupled to at least one of the

plurality of emitters, wherein the filter is operable to vary the initial spectrum width (e.g. via tuning of the filter) of at least one of the initial channels to form at least one new channel that utilizes a channel spacing of at least one of the initial channels, wherein the at least one new channel has a respective new spectrum width. Handelman differs from the claimed invention in that Handelman fails to specifically teach a plurality of passband filters each coupled at least one of the plurality of emitters. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have included a plurality of passband filters, since it has been held that mere duplication of the essential working part of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co., 193 USPQ 8.*

Regarding claims 27 and 29, Handelman differs from the claimed invention in that Handelman fails to specifically teach that the second channel space and the third channel space collectively comprise the first optical channel space. However, one skilled in the art would clearly have recognized that in the system of Handelman, it would have been possible to divide all of the information comprising the first channel space between the second and third channel spaces, thereby allowing the second and third channel spaces to collectively comprise the first channel space. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have divided the first channel space between the second and third channel spaces so that the second and third channel spaces comprise the first channel space.

Regarding claims 28 and 30, Handelman differs from the claimed invention in that Handelman fails to specifically teach activating a second and third transponder when the new channel space is created. However, Handelman teaches that communication can be established between remote transponders and a local controller to de-activate transponders for channel

wavelengths which are not within the selected group of channel wavelengths. As such, one skilled in the art would clearly have recognized that it would have been possible activate a remote transponder when a need for an additional wavelength were required. Handelman suggests as much in the disclosure of the invention (column 18 lines 44-59). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to activate a second and third transponder when a new channel is created by the same means that a channel is deactivated in the system of Handelman.

Response to Arguments

5. Applicant's arguments filed 10/16/03 have been fully considered but they are not persuasive. The applicant contends that Handelman teaches combining optical signals but makes no mention of increasing spectrum width of optical channel spaces or creating a new channel space. However, the examiner disagrees. In Handelman, an N-channel bandpass filter (reference numeral 130 in Figure 2) allows a maximum of N wavelengths to propagate simultaneously through the filter so long as the wavelengths are within the passband of the filter. For example, using N=8 and the passband 1551nm - 1558nm, any wavelength up to a maximum of 8 wavelengths within the passband would be allowed to pass. Handelman discloses a scenario wherein wavelengths outside the passband (e.g. < 1551nm or >1558nm in the example) would be converted to wavelengths within the passband of the bandpass filter and combined with the non-converted wavelengths to form a new channel space comprising the non-converted wavelengths in addition to the converted wavelengths. As such, it is clear that Handelman contemplates a scenario wherein wavelengths are received which fall within the passband but fail to take up the entire allowed spectrum (e.g. only four wavelengths are received within the passband but a

maximum of eight wavelengths are allowed to pass through the filter in the example) while other wavelengths are also received which fall outside the passband of the filter. Handelman teaches that the received wavelengths that fall outside of the passband are then converted to wavelengths within the passband and combined with those non-converted wavelengths, thereby filling the rest of the available spectrum (e.g. at least four more converted wavelengths are added to spectrum of the non-converted wavelengths filling the allocated 8 wavelength maximum in the example). Clearly, the spectrum width of the of the non-converted optical channel space is augmented by the spectrum width of the converted optical channel space to create a new channel space that has the increased spectrum width up to the maximum spectrum width allowed (e.g. N=8 in the example). As such, the claim limitations are clearly met by Handelman.

Furthermore, though the applicant's observation is correct that the disclosure of Handelman prevents combining optical signals if the resultant data rate on each corresponding channel wavelength exceeds a channel data rate threshold, it hardly precludes the possibility that the spectrum width can be increased to create a new channel space. For example, if the resultant data rate on each corresponding channel wavelength does not exceed a channel data rate threshold then the channel wavelengths can be combined, as discussed above, so long as the maximum N is not surpassed.

In response to the applicant's argument that Handelman does not disclose, teach or suggest tuning a filter associated with the first optical channels space to a wider passband to increase a spectrum width of a first optical channel space to create a new optical channel space, the applicant is directed to column 14 lines 29-34. Therein, Handelman specifically recites the ability to tune the bandpass filter associated with the first optical channel space (e.g. non-

converted wavelengths in the example above) to enable selection of the number of channel wavelengths transmitted by the filter. In effect, Handelman discloses that the filter can be tuned to increase the number N of wavelength passed, thereby providing a wider passband to which more converted wavelengths can be added non-converted wavelengths to create a new optical channel space. Therefore, Handelman meets the limitations of claim 17.

In response to the applicant's argument against the rejection of claim 19, it is clear that Handelman teaches increasing spectrum width of an optical channel space to create a new channel space as discussed above. Furthermore, as noted by the applicant, Handelman discloses transferring of data from one channel wavelength to another channel wavelength thereby allowing a new optical channel space created by the combination of non-converted wavelengths and converted wavelengths to carry a signal at a bit rate requiring the new spectrum width. Moreover, the applicant's arguments regarding the use of tunable filter to increase spectrum width have been addressed.

In response to applicant's argument against the rejection of claim 20, it is well known in the art that a direct relationship exists between the data rate of a signal and the spectral width of the signal. The higher the bit rate the wider the spectrum width required to carry the higher bit rate. This well known concept is noted by the applicant in the specification. As such, it is clear that Handelman, in transferring data carried by one wavelength to another wavelength, also divides a first optical channel space to create a second optical channel space having a second spectrum (e.g. augmented by the transferred increased data rate) and a third optical channel space having a third spectrum width (e.g. augmented by the transferred increased data rate). Clealry, when one channel's bit rate is reduced the spectrum width is proportionally reduced. Likewise,

other channels to which the data is transferred will have an increased spectrum width. As such, it is clear that Handelman teaches the limitations of the claimed invention.

Regarding applicant's argument against the rejection of claim 21, Handelman specifically discloses that the apparatus of Figures 2 and 5 may be combined to provide combined benefits. As such, it is clear that Handelman anticipates dividing a first spectrum width of first optical channels space by tuning a tunable filter (reference numeral 130 in Figure 2) to a narrower passband. Reducing the number of wavelengths passable by the tunable filter would require reduction in the data rate and, therefore, the spectrum width of the first optical channel space.

Regarding applicant's argument against the rejection of claim 23, the examiner has shown how Handelman anticipates formation of a new spectrum width. In forming that new spectrum width it is clear that a channel spacing of at least one of the initial channels would have been utilized. Furthermore, the context of "channel spacing" is not clearly defined in the claim. As such, it is assumed by the examiner that the initial channels have predetermined channel spacing and that in creating a new spectrum width from these initial channels with their channel spacing, a new channel utilizes the channel spacing of one of the initial channels. In other words, channel spacing exists before varying the spectrum width to form a new channel spectrum width and the new channel utilizes the channel spacing of the initial channel. Given the variable nature of the system of Handelman, one skilled in the art would clearly have recognized that it would have been possible to utilize any desired channel spacing, including channel spacing of the initial channel. Furthermore, one skilled in the art would clearly have recognized that using the channel spacing of an initial channel would have prevented overlapping of channels, and therefore cross-talk between adjacent channels.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (703)308-1393. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703)305-4729. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9314 for regular communications and (703)872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

AB
January 20, 2004

JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600